GrummanWorld

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New D.C. Attraction. *At the October 13 dedication of the U.S. Navy Memorial in Washington, D.C., people get a close look at the bronze statue of the 'Lone Sailor.' It stands at the edge of a 100-foot circular granite plaza with a map of the world inlaid on its surface. The U.S. Navy Memorial was a $12 million project funded by private donations. Grumman Corporation led the private industry sector by donating $250,000 during the past five years.*

Pension Fund Is Still Secure, Healthy After Stock Market Crash

The Grumman Pension Fund — worth over $1.9 billion — survived last month's stock market crash in good shape. "It went into 1987 with a good cushion," says Bill Parmentier, assistant treasurer and investment manager. "It was overfunded then — and it still is."

Over 25,000 Grummanites are members of the Grumman Pension Plan. Grumman Allied has its own pension plan. Grumman St. Augustine, Grumman Technical Services, and Electronic Systems' Salisbury Operations and Tachonics units have capital accumulation plans. (See sidebar below for story on these plans.)

The Grumman Pension Plan is a "defined benefit" plan. The amount of any pension is determined by a specific formula. Each year Grumman must raise or lower its contributions to the plan to keep the plan's assets at a level that matches any present and future obligations.

Over 10,500 people are receiving monthly pension checks from Grumman this year.

In 1973, Grumman brought the management of its Pension Fund in-house. Today, it is managed by Parmentier and his five investment portfolio managers, under the guidelines established by Vice Chairman-Finance Robert Freese. "We do our own trading," says Parmentier. "We deal with all the major houses on the street. We are probably the largest money manager on L.I."

The assets of the Grumman Pension Plan are managed as a diversified balanced fund which means typically a 50/50 split between stocks and bonds. "However, we have some discretion as to overall equity exposure and can vary that weight depending

(Continued on page 3)

Other Plans Are In Good Shape, Too

Grumman Allied's Pension Fund is managed by CIGNA, a life insurance company. It is a defined benefit program; Grumman is obligated to keep the plan's assets at a level that matches any present and future obligations. "It is very well funded," says Allied Division Controller Frank Rizzo. "It had a good cushion going into the crash and remains in good shape."

Grumman St. Augustine Division, Grumman Technical Services Division and a few Electronic Systems Division units — including Salisbury Operations in Maryland and Tachonics in New Jersey — have capital accumulation plans. Grumman contributes toward the accounts of the Grummanites in these groups, based on a percentage of their salaries. When they retire, they are entitled to the value of their accounts either in lump sum or in installments.

All the money for these plans is invested in the Guaranteed Income Fund of the Grumman Employee Investment Plan. This year, the money is earning slightly over 11 percent interest. Therefore, none of the capital accumulation plans were affected by the recent stock market crash.

Grumman Reports Third Quarter Results

Net income and sales decline; backlog is $6.8 billion

Grumman Corporation has reported net income for the third quarter ended September 30 of $7.1 million or 18 cents a share down 55 percent from the year-ago quarterly net of $15.9 million or 46 cents a share.

Quarterly sales declined 12 percent to $772.2 million from $875.7 million. The decline in sales and income had been expected because of fewer aircraft scheduled for delivery in the 1987 quarter. Grumman continues to anticipate a recovery in the fourth quarter and beyond.

In the quarter, research and development expenditures declined $10.5 million to $6.8 million. Meanwhile, interest expenses were up $2.3 million to $15.4 million due to increased borrowings.

For the first nine months of 1987, net income was $39.7 million or $1.10 a share on sales of $2.4 billion. The 1986 nine months net income was $53.9 million or $1.60 a share on sales of $2.6 billion. The year ago nine months included a special gain of $3.4 million or 11 cents a share from the sale of a subsidiary. The backlog as of September 30 was $6.8 billion.

In the 1987 quarter, sales in the aerospace segment declined $163 million to $545.1 million due to the delivery of fewer aircraft to the U.S. Navy. While six F-14s were delivered in the third quarter of 1986, none of the Navy fighters were delivered in the 1987 quarter. No F-14 deliveries were scheduled for the second and third quarters of this year as the production line is changed over for a new re-engined model. F-14 deliveries will resume in the fourth quarter with two aircraft. E-2C deliveries were down by two aircraft in the quarter and A-6E's by one compared with the year ago period.

In the electronic systems segment, sales increased $43 million primarily from the U.S. Air Force/Army Joint STARS development program and deliveries of automatic test equipment to the Navy. In the special purpose vehicles segment, sales increased 85 percent to $70.1 million due to production of the U.S. Postal Service's new delivery truck. The first truck was delivered in the second quarter of this year and to date the Postal Service has 4,500 vehicles. Production is now over 85 a day and the company's goal is 95 by year end.

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Two Circuit Makers Join Forces

Tachonics, an affiliate of the Electronics Systems Division, and Gigabit Logic, Inc., of Newbury Park, California, have signed a second-sourcing agreement. Both companies will manufacture and distribute the same lines of gallium arsenide digital integrated circuits.

"The two firms' customers now have the security of having two suppliers of ultra-high performance circuits for their digital systems," says Tachonics President Chuni Ghosh.

Gallium arsenide is a relatively new technology. Gallium arsenide circuits will make possible the next generation of computers and telecommunications networks. Gallium arsenide circuits can handle both electronic and light signals and can process information about four times faster than silicon-based circuits.

The agreement only affects digital circuits. Tachonics will continue independent development, manufacturing and sales of other gallium arsenide products.

As far as digital circuits are concerned, "It puts us squarely in the market with a company that has an established and broad product line," says Steve Goodspeed, Tachonics vice president for Digital Products. "It gives us a standard product line very quickly."

Established in 1981, Gigabit Logic was one of the first companies formed to produce gallium arsenide logic circuits. Current investors in the company include computer manufacturers Cray Research and Digital Equipment Corporation.

Grumman formed Tachonics in 1985 in Plainsboro, New Jersey. Tachonics has been producing gallium arsenide switches and amplifiers for customers since the beginning of this year.

The second-sourcing agreement calls for Gigabit Logic to transfer design, manufacturing and test data for some of its circuits to Tachonics. The two companies will also develop cell libraries to support future gallium arsenide process technology now in the final stages of development at both companies. Tachonics is also starting to develop software to run some of Gigabit's design data on its systems.

In the long run, the second sourcing agreement should help draw potential customers, who see risk in buying advanced technology digital circuits from small manufacturers, says Goodspeed. "It gives both of us more credibility in the market as viable semiconductor producers."

That could be an important advantage in a market that is expected to grow in leaps and bounds over the next several years.

"The digital market right now is relatively small, like the rest of the gallium arsenide industry," says Goodspeed. "The total market for gallium arsenide circuits is projected to be as much as $900 million by 1991, and digital circuits make up about half that market."■

Packing A Punch. *This F-14 Tomcat recently made its first successful launch with the Advanced Medium Range Air to Air Missile (AMRAAM). It happened at the Navy's Pacific Missile Test Center in Point Mugu, California. About two dozen Grummanites in Bethpage and Point Mugu worked on various parts of the project.*

Tomcat Launches New Missile

The F-14 Tomcat recently made its first direct hit with the Advanced Medium Range Air to Air Missile (AMRAAM).

The launch took place at the Navy's Pacific Missile Test Center in Point Mugu, California. The AMRAAM missile will replace the current Sparrow missile, and is tentatively scheduled to go into the next generation F-14D Tomcat in 1992. It has already been demonstrated on the F-15, F-16 and F/A-18 aircraft.

About two dozen Grummanites in Bethpage and Point Mugu worked on various phases of the project. "We had to modify two F-14A's to provide the electrical, mechanical, and computer-system interfaces necessary to mate the AMRAAM missile," says Tom Reilly, Grumman project manager at Point Mugu. "We also supported all the ground and captive flight tests that preceded the actual launch."

AMRAAM is being developed jointly by the Air Force and Navy, with the Air Force as the lead service. Improvements over the Sparrow include higher speed, greater range, increased maneuverability, and a look-down, shoot-down capability.

"Extensive analytical work is required using Grumman's six-degree-of-freedom separation simulation to ensure safe operation of the missile with the F-14," says Bill Branston, F-14 AMRAAM engineering task leader. Aircraft with multiple target-track capability will be able to launch AMRAAMs at multiple targets, providing a powerful air-to-air combat advantage.

The plane was at .9 Mach and 20,000 feet altitude over the Pacific when it launched the missile. The target was a pilotless QF-86 drone aircraft equipped with a missile-jamming system, which the AMRAAM was able to counter. A second launch is planned in early 1988.

The missile's history goes back about a decade. "Grumman has been supporting this program since the initial five companies competed for preliminary design contracts in 1978," says Reilly. Hughes and Raytheon then won identical demonstration and validation contracts, and Grumman supported both.

Hughes won the full-scale development contract for AMRAAM in early 1982. Several months later, Raytheon was selected as a second producer of AMRAAM.■

Data Systems Institute Unveils 1988 Curriculum

Grumman Data Systems Institute is offering the following courses next year:

Computer Programming—January 4.
Computer Operations—January 5.
Computerized Accounting—January 11.
IBM Personal Computer Training—January 11.
Electronics Technology—January 18.
Computer Service Technology—March 7.
Computer-Aided Drafting and Design—March 28.
Systems Analysis—April 18.
Automated Office Technology—September 6.
Court Reporting—September 19.

With the exception of Court Reporting and IBM PC Training, all the courses are covered by the Grumman Tuition Reimbursement Program.

For more information, call the Institute's admissions offices: Nassau Campus, 364-2055; Suffolk Campus, 467-6690.

Third Quarter Results Reported

(Continued from page 1)

In the information and other services segment, sales declined $10 million to $106 million as a result of lower revenues from the Data Systems division.

As first reported in August 1986, certain technical problems have been identified on the F-14D and A-6F programs which could significantly affect program costs and schedules, as well as performance of the aircraft. These problems continue to be the subject of intense discussions between the Navy and Grumman. Pending resolution of these matters the company is unable to determine if or to what extent there will be any attendant loss.

"We fully expected the decline in the second and third quarters because of fewer aircraft scheduled for delivery," said Chairman Jack Bierwirth. "With F-14 deliveries starting again, I remain confident that our earnings from operations will improve substantially in the fourth quarter."■

Personals

My family and I wish to thank all my friends, coworkers and ESO for their kind expressions of sympathy during the recent loss of my brother. The prayers, flowers and support gave us great comfort. **Rose Rivera**

I would like to express my thanks to all my co-workers and ESO for their kindness and thoughtfulness during the recent loss of my sister. **Rae Fontana**

My family and I wish to thank all my friends, co-workers and ESO for their kind expressions of sympathy during the recent loss of my mother Sophia Rzeszut. **Mary A. Tomaszewski**

My family and I wish to express our deepest thanks to all of my friends, co-workers and ESO for their kind expressions of sympathy and condolences during the recent loss of my beloved mother. **Wayne Dombroski**

My family and I extend our deep appreciation and sincere thanks to all my friends, co-workers and ESO for the caring, flowers, donations and kind expressions of sympathy during the time of illness and recent loss of my beloved wife. **Bob Lomot**

I wish to thank all my co-workers, friends and ESO for their concern and support during my recent operation. **Anita Wonato**

My family and I wish to express our deep appreciation and thanks to all my co-workers, friends and ESO for their kind expressions of sympathy and condolences during the recent loss of my mother. **Mary Pippen**

The family of Joseph W. Sokol wishes to express its deep appreciation to all of Joe's co-workers and friends who offered kindness and concern during this trying time. **Mrs. Cathy Sokol**

My family and I wish to extend our deep appreciation and thanks to all my co-workers, friends and ESO for their kind expressions of sympathy during the recent loss of my mother. **James E. Thompson**

And Now They Have Five. *Under a contract to purchase five E-2C's, the Egyptian government accepted delivery of the last three. Celebrating the event were (from L to R) George Golden, director of foreign military programs; James Philbin, E-2C program vice president; Brigadier General Adel EL' Geredly, Egyptian Air Force program manager; Harry Hess, Grumman Egyptian program manager. (Photo by Rich Breunig)*

Egyptian Air Force Now Has Fleet Of 5 Hawkeyes

Egypt now has all five of its Grumman E-2C Hawkeyes. The last three left Calverton, L.I. on October 20; the first two have been operational in Egypt since January.

"The program went very well," says Jim Philbin, E-2C program vice president. "The Egyptian government has been very supportive."

Additional E-2C's may be sold to Egypt in the near future. "Right now there are plans to purchase another E-2C and a tactics trainer," says Philbin.

The actual sale of the aircraft comes under the foreign military sales program as a government-to-government transaction.

As part of this program, Grumman will furnish aircraft spares and support equipment to the Egyptians for the next three years. In addition, about 40 Grummanites will remain in Egypt with their families to give support to the Egyptian Air Force E-2C personnel. The Grumman in-country team includes a pilot and a flight test systems instructor, electronic airframe and other support personnel.

"Grummanites will stay in Egypt for an unlimited period of time to help the Egyptian Air Force implement its own operational tactics," says Philbin.

Over 200 members of the Egyptian Air Force recently completed an extensive E-2C aircraft training course at Grumman in Bethpage. Egypt is the fourth foreign country to be trained on the E-2C. Israel, Japan and Singapore have also been trained. In 1986, over 500 E-2C training flights flew out of Bethpage.

Before the Egyptian students were admitted into the training program, they had to attend the U.S. Air Force's Defense Language Institute. The students spent six weeks at the Texas facility perfecting their English.

"An 80 percent English comprehension level is the minimum score needed to be accepted into the course," says Harry Hess, Egyptian E-2C program manager. "The Egyptian students did an excellent job in the training program."

E-2C training for the Egyptian students is basically the same as for the American crews. "There are only minor configuration differences between the planes we fly and the aircraft sold to Egypt," says Hess. "With the exception of certain classified software and equipment that cannot be sold to foreign governments, it is identical to the U.S. Navy aircraft."■

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Next Issue: November 30

Turn In Your Tickets

Come back from a business trip with unused airline tickets? Return them to Field Administration and Travel, *not* to the American Express or Austin Travel agencies. Send the unused tickets to Janellyn Smith, A05-117, Ext. (111) 57467.

Pension Fund Is Healthy

(Continued from page 1)

upon market conditions," says Parmentier. "We try to pursue a strategy of selling into market strength and buying on weakness. During 1987, we were net sellers of stock and by late August had only 40 percent of the fund's assets in the market.

"We are biased on the down side," he adds. "We forego opportunity in order to reduce losses during market declines. We never invest over 60 percent of our total assets in stocks — which some funds do. You can't call a market's peak precisely, so we strive for superior relative results during down markets."

"Once you lose money — that's it. Sometimes when the market turns, you can't get out," he says. "People couldn't get through to their brokers on the day of the crash."

Parmentier admits it's sometimes hard to pull yourself away. "Although many stocks now look so cheap, quite frankly you get gun shy after the debacle we just experienced."

Throughout 1987, Grumman had been moving some of its assets to safer short-term liquid investments. It had over $425 million in these investments by the end of the third quarter and was at the minimum equity exposure of 40 percent.

The stock market dropped about 23 percent during October, while the Fund's equity assets dropped only 13 percent.

"We manage the Pension Fund more conservatively than most other company's fund managers," says Parmentier. "If the market keeps going down we are still losing — but less than the next guy.

"Meanwhile, we are doing much better with our bond portfolio — it went up almost three percent during October," says Parmentier. "Sometimes higher interest rates cause the stock market to fall and you get hit from both sides as the values of bonds and stocks decline. The money that was coming out of the stock market was going into short-term treasury bills. This is what's called a 'flight to quality.' The demand for those treasury bills was so great that the yields fell sharply as people began to panic. But the Federal Reserve flooded the banking system with reserves to forestall what they thought could have developed into a crisis."

Vehicles with a maturity of one year or less such as treasury bills or bank-issued CDs are considered cash for Grumman's Pension Fund. "We only deal with the highest quality banks," says Parmentier. "We also invest the cash in U.S. agency securities which are quasi-government short-term investments."

Such investments are called cash equivalents because they preserve the principal. "That's the only place to hide during the debacle we have just witnessed," he says. "After the crash, treasury bill returns fell from six and a half to four percent. They dropped because everyone wants them as a safe haven.

"I think we almost came to the brink of a financial crisis that Monday, but the Fed acted quickly — unlike 1929 — and provided the necessary liquidity."

Parmentier and his portfolio managers are still gun shy when it comes to getting back into the market. "We have been buying some selective stocks, but have not been aggressively putting our cash reserves back to work."■

Keeping Tabs On The Market. *Bill Parmentier, assistant treasurer and investment manager, and Martin Weiner (R), stock portfolio manager, review the latest reports from Wall Street. The Grumman Pension Fund is managed by Parmentier and his five investment portfolio managers. 'We do our own trading,' says Parmentier. 'We deal with all the major houses on the street. We are probably the largest money manager on L.I.' (Photo by Bob Sagliocca)*

Equity Fund Drops About 21.5%

The equity fund of the Grumman Employee Investment Plan did not fare much better than the rest of the stock market in last month's crash. The entire stock market plummetted 30 percent; the EIP equity fund dropped about 27 percent. However, it did finish the month down only about 21.5 percent.

Grummanites currently have invested around $75 million in the equity fund. "Even though the equity fund is down for October, it is still up for the year. It's had quite a run up over the last few years," says Harry Turner, director of Economic Analysis for Grumman Corporation.

In addition to the $75 million in the equity fund, Grummanites have invested $50 million in the fixed income fund. The vast majority of EIP members put their money in the guaranteed income fund which is yielding around 11 percent this year. Over 400 million dollars is invested in this fund. This fund is not affected by the fluctuations of the stock market, so its value did not change.

The company stock fund was worth about $250 million at the end of October. Grumman matches 50 cents for every dollar a Grummanite invests in the EIP — up to four percent of his/her base salary — in company stock. Grumman stock closed on October 30 at $22.50.

Of these four EIP funds, the equity fund and the company stock fund are the most risky. "Both go through much more gyration than the others. Over the years it does offer real growth but it does go down, too," says Turner. "What was once a paper gain is now a paper loss."

When First Manhattan began managing the equity fund in July 1986, it was given a marching order by Grumman: when the stock market goes up you don't have to make as much, but when it goes down, make sure you don't lose as much. "They didn't do as well on the up side as the rest of the market, but on way down they barely outperformed the market," says Turner.

In the two most recent quarterly reports from the EIP to its members, First Manhattan reported that it was holding 20 percent of the fund's assets in cash reserves. It said that it couldn't find good stock buys in the rising market. Some EIP investors complained, says Turner. "They wanted all their money in stocks not in cash. Being invested temporarily in cash, however, is a very useful strategy in certain market conditions."

What can EIP investors learn from the stock market crash? Turner recommends that all members review their investments from time to time. Even though the EIP was set up as a long term savings plan, it does not mean that investors cannot change their investment funds from one to another. Switches are permitted every six months. In addition, investors do not have to put all their money in one fund; they can break it up according to their needs.

Because of the volatile market last month, the EIP office in corporate headquarters changed its recorded message several times during October. "People needed information to make a decision by the end of the month, so we recorded up-to-date estimates," says Turner. This procedure will be continued if there is any late breaking news that EIP members should know about. The recorded message is on Ext. (111) 54400.■

Unit Values

These are the Grumman Employee Investment Plan unit values as of September 30 (compared to August figures):

Equity Fund
4.848 down from 4.944

Fixed Income Fund
5.599 down from 5.697

Guaranteed Income Fund
2.602 up from 2.581

Company Stock Fund
$28.25 down from $28.81

How Grumman Equity Fund Compared To Standard & Poor 500

Percentage Of Change In 1987

Month	Equity Fund	S&P 500 Index
Jan.	+9.7	+13.2
Feb.	+5.9	+3.7
Mar.	+1.8	+2.6
April	-1.9	-1.1
May	-.26	+.6
June	+4.8	+4.8
July	+5.3	+4.8
Aug.	+.09	+3.5
Sept.	-1.9	-2.4
October(est.)	-21.5	-21.8

Showtime. *Grumman displayed a full-scale mockup of TMAP (Teleoperated Mobile Antiarmor Platform) at the U.S. Army Infantry School during a recent trade show. In July, Grumman won a $3.9 million contract to build one TMAP for testing at Ft. Lewis in Washington. Delivery is scheduled for September 1988.*

Obituaries

Charles M. Checola of Production Control, Stuart, Aircraft Systems Division, died Oct. 9 at the age of 55. He had been with the company since 1954 and resided at 167 S.W. Lakehurst Dr., Port St. Lucie, Florida.

Stephen L. Gaffney Jr. of Support Control, Bethpage, Aircraft Systems Division, died Oct. 13 at the age of 47. He had been with the company since 1963 and resided at 2280 Arby Ct., Bellmore, N.Y.

William A. Nalback of A-6/ EA-6B Systems Test, Calverton, Aircraft Systems Division, died Oct. 20 at the age of 52. He had been with the company since 1981 and resided at 85-1661 Old Country Rd., Riverhead, N.Y.

Joseph W. Sokol of Requirements Planning, Great River, Electronics Systems Division, died July 9 at the age of 46. He had been with the company since 1966 and resided at 1300 Campbell Rd., Wantagh, N.Y.

Christian J. Staebler Jr. of Advance Materials and Process Development, Bethpage, Aircraft Systems Division, died Oct. 9 at the age of 49. He had been with the company since 1962 and resided at 11 Huron Ave., Massapequa, N.Y.

Albert G. Turnquist of Mechanical Detail and Finish, Great River, Electronics Systems Division, died Oct. 1 at the age of 55. He had been with the company since 1952 and resided at 468 Daryl Dr., Medford, N.Y.

Retiree Obituaries

Louis P. Bourque of 7218 N. Mt. Shadows Rd., Tucson, Arizona, died Sept. 6, 1987. He retired in 1974.

Paul H. Burke of 26 Quebeck Dr., Huntington Station, N.Y., died Oct. 6, 1987. He retired in 1970.

Anthony DeLouise of 81 Brook St., Bay Shore, N.Y., died April 28, 1987. He retired in 1976.

George R. Eicher of 8177 Casa Blanca, San Diego, California, died Sept. 3, 1987. He retired in 1973.

Lewis Gibson of 12 Straw Lane, Central Islip, N.Y., died Oct. 7, 1987. He retired in 1984.

Albert Hendrickson of 4885 Belvedere Rd., West Palm Beach, Florida, died Oct. 9, 1987. He retired in 1969.

Charles L. Herrmann of 9 East Garfield St., North Merrick, N.Y., died Oct. 5, 1987. He retired in 1980.

William S. Hounsell of 94 Wyandanch Ave., Babylon, N.Y., died Oct. 18, 1987. He retired in 1987.

Charles Jazombek Jr. of Box 73 Sound Ave., Mattituck, N.Y., died Sept. 6, 1987. He retired in 1976.

Jay L. Kess at P.O. Box 15604, Plantation, Florida, died Sept. 6, 1987. He retired in 1973.

Mary L. Koch of 15 Seymor La., Hicksville, N.Y., died Oct. 15, 1987. She retired in 1983.

Henry W. Lada of 37 Cinque Dr., Farmingdale, N.Y., died Sept. 14, 1987. He retired in 1984.

Eugene A. Leblond of 1443 11th St., West Babylon, N.Y., died Oct. 15, 1987. He retired in 1983.

Raymond Lauck of 96 Brandy Hills Dr., Port Orange, Florida, died Aug. 31, 1987. He retired in 1974.

Norman G. MacKinnon of 435 E. 57th St., New York, N.Y., died Oct. 12, 1987. He retired in 1977.

Julius Marcucci of 636 Davis Ave., Uniondale, N.Y., died Oct. 11, 1987. He retired in 1987.

Robert T. McCall of 19 Chevy Chase Dr., Amityville, N.Y., died Oct. 10, 1987. He retired in 1986.

Frederick L. Milligan of 2232 Beaver La., Vinton, Virginia, died Sept. 24, 1987. He retired in 1975.

Kurt Pahrisch of 335 Ackerman St., Central Islip, N.Y., died Sept. 9, 1987. He retired in 1964.

Rose D. Pascarella of 66 Bedford Ave., Westbury, N.Y., died Oct. 9, 1987. She retired in 1974.

Arthur S. Perkins of 11 Russett La., Akron, Ohio, died Oct 6, 1987. He retired in 1984.

Walter Petruck of 36 Brodetzky St., Ramat Aviv, Tel Aviv, Israel, died Sept. 28, 1987. He retired in 1985.

Frank Rome of 748 Golf Dr., Venice, Florida, died June 7, 1987. He retired in 1967.

Adolph Schaller of 8270 SE Eagle Ave., Hobe Sound, Florida, died Sept. 14, 1987. He retired in 1968.

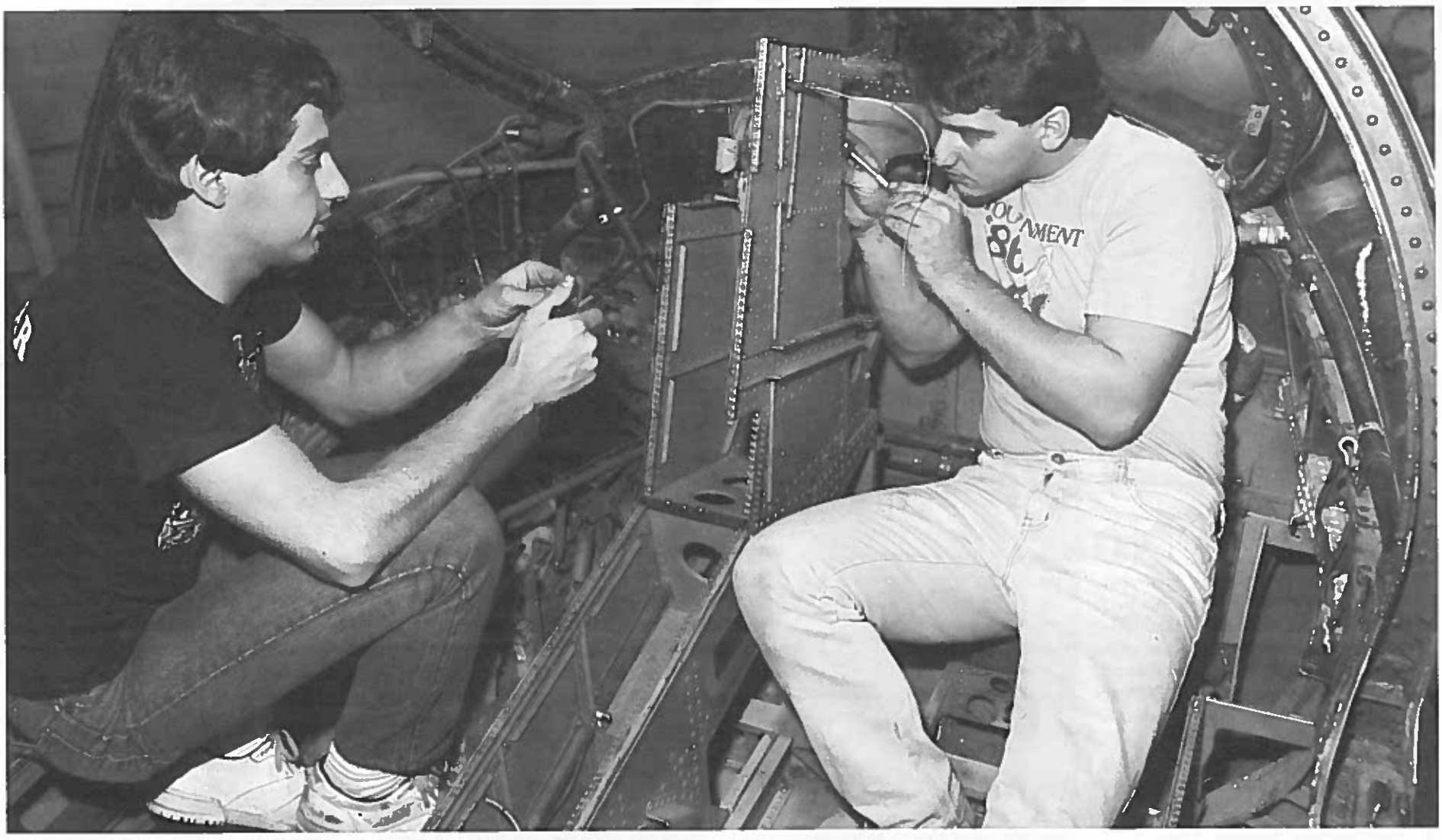
Salvatore Sinacore of 23 Douglaston Ct., Ridge, N.Y., died Oct. 12, 1987. He retired in 1983.

Edwin T. Stubbs of 51 E. Mediterranean, Port St. Lucie, Florida, died Sept. 10, 1987. He retired in 1974.

Dean H. Swain of 2659 Balltown Rd., Schenectady, N.Y., died Sept. 16, 1987. He retired in 1974.

Edgar Tappen of 8 Ave. C., Holbrook, N.Y., died Sept. 11, 1987. He retired in 1971.

Twenty-Fifth EA-6B Prowler Arrives For ICAP 2 Update



Off With It. *Structural mechanic Tom Butler Jr. (L) removes the arresting hook handle from the EA-6B for repair. Fuel mechanic David Trefimovich dismantles the fuel cutoff cable and the foward cockpit lock for inspection and repair. (Photos by Karl Thoma)*

The 25th EA-6B to go through the Modification-Standard Depot Level Maintenance Program, MOD-SDLM, was inducted this month at Calverton, L.I. This marks the halfway point in the update-and-maintenance program, in which older ICAP 1 (Increased Capabilities) Prowlers are being modified to the present ICAP 2 configuration.

The update program modifies and maintains 12 aircraft a year, the same rate as Grumman builds new EA-6B's.

Since the delivery of the first updated EA-6B in August of 1986, the Calverton operations team has maintained on schedule performance. So far it has delivered 15 aircraft to the Navy and Marines. Modification deliveries will continue through October of 1990.

When updated, the Prowler aircraft will include the latest advances in a fully integrated airborne jamming system. The newly installed ASN-123 Digital Display Group provides a display which enables the Electronic Countermeasures Officer (ECMO) to easily select jamming targets. The ASN 130, an inertial navigation system, increases the pilot's ability to identify his exact location.

A Navy standard AYK-14 computer with greater memory and speed is also being installed. It receives and processes information that leads to the identification of emitters. The computer utilizes the most current Grumman-developed software.

In addition to these on-board changes, the ICAP 2 aircraft will utilize a new universal exciter in the jamming pods located under the fuselage and wings. Each exciter tailors the jamming signal for transmission by powerful amplifiers. Signals can be generated by the exciter in any of seven different frequency bands.

Commencing with the 30th EA-6B mod aircraft, additional changes will be incorporated as part of the on-going modification program. These changes include the installation of new radios, a crypto-processor which translates coded messages, a digital fuel gauging system and a new computer interface unit/encoder.

"Once again we are keeping pace with our production configuration by returning the most up-to-date EA-6B's to the fleet," says Martin O'Connell, EA-6B assistant program manager.■

Cleaning Things Up. *Structural mechanic Jack McArdle is removing corrosion from the honeycomb panel in the aft cockpit of the EA-6B.*

Out For Repair. *Senior structural mechanic Greg Chiacchiaro removes the main landing gear trunnions from the EA-6B. The trunnions attach the landing gear to the wings.*

Bischoff Discusses The Office Of Corporate Technology

'Change Is Upon Us. If We Don't Do Something About It, We Will Not Survive.'

Technology has been a cornerstone of Grumman for over 55 years. How does the company make sure that it will continue to be in the year 2000?

A major step toward ensuring that Grumman retains its high tech reputation was taken last month, when the Office of Corporate Technology was formed. Vice Chairman-Technology Will Bischoff has been appointed director of this new Office, which will officially open on January 1, 1988.

"We know, and our customers know, that quality and technology are Grumman hallmarks," says Bischoff. "They know that if Grumman built it, they can count on it. This is a reputation we must strive to sustain."

The Office is designed to bring the company's technological assets — research, engineering, manufacturing engineering, technology development, facilities and people — into focus at the corporate level.

'This Office does not 'own' division technologists or engineers.'

"The Office's creation is good news for everybody in the technology community, because it reinforces at the highest level of the corporation the importance of our scientists, engineers and technologists. After all, technology is the life blood of our business," says Bischoff. "The Office gives Grummanites in the technical community a stronger voice and a guarantee that their concerns and needs will be heard and understood."

While the Office represents a change in the structure of the technical community, it will not result in a drastic movement of people or resources. "Its structure retains the nucleus of technical skills and leadership of day-to-day operations at the division level," says Bischoff. "This Office does not 'own' division technologists or engineers."

Each division's head of engineering will continue to be responsible to his division president for the operations within his division. However, these technical leaders will also report to the Office of Corporate Technology.

Bischoff acknowledges that the Office of Corporate Technology creates some dual reporting relationships, but stresses that the intention is not to break chains of command but to unify and strengthen Grumman technology.

"We need to profitably execute the programs which comprise our $7 billion backlog, while at the same time making sure that divisions grow through the efforts of skilled technologists and managers," he adds.

The Office has been in development for over a year. It was formed after top Grumman officials reviewed the business scene and asked themselves, What is the current status of Grumman's technology? With divisionalization, how does the company make sure that it keeps pace with the marketplace and the competition? What is the shape of the future? What technologies must be in development today to support strategic objectives of the year 2000 and beyond?

"Our self-examination yielded some very positive information — some great achievements in which we all can take great pride and which we often take for granted," says Bischoff. For instance, Grumman has recently won several large contracts in nontraditional programs such as Joint STARS, Boost Surveillance Tracking System (BSTS), Space Based Radar (SBR), Intermediate Forward Test Equipment (IFTE) and the Space Station Program Support Contract.

However, Bischoff says that there are some real problems that must be faced head on. "To continue our success, we must position ourselves to respond to change." A number of factors contribute to the challenges faced by Grumman's technical organization, including changes in the work force, divisionalization, customer demands, market changes and increasing performance requirements.

"A fundamental change in the nature of defense products has taken place," says Bischoff. "The one-time need for diversity and numbers of defense products has been replaced with a procurement climate dictating fewer products — of unprecedented size, scope, capability and complexity. This fact has led to customer demands for new and innovative approaches on the part of the contractor.

'Technology is the foundation of Grumman's success — and it is the platform for the future.'

"We are all well aware of the changes in the federal government's procurement system, where much of the risk — once shared by the government and industry — has been shifted almost entirely to the technical community," he adds. "Obviously, our company's response to the new procurement environment must be articulated and implemented by top management. But it is incumbent upon us in the technical community to identify our stake in the scenario, communicate our concerns, develop options for solutions — and participate in the solutions."

Changing technology has demanded change in Grumman's management approach to design and development. "The sheer size and complexity of current projects makes it almost impossible for any individual, small group or even division to completely understand and support a sufficient subset of the necessary technologies," he says.

The divisional structure of the company has better positioned it for growth in specific markets, but it has also created some major challenges such as avoiding duplication of effort, effective use and distribution of already scarce resources, and assuring the technical focus of the corporation as a whole.

"We all know about these challenges, but I don't think we have ever attempted to address them in a coordinated, comprehensive fashion," says Bischoff.

Grumman will be required to develop new and innovative systems engineering and technical management methodologies. "A compounding challenge we face is that technology is imbedded not only in our products, but in the processes by which they are created — processes using tools such as CAD/CAM/CAE," says Bischoff. "Our question to ourselves was: Do we have in place the management infrastructure to accommodate technology as it changes rapidly and becomes more complex?" In addition, Grumman may also have to form strategic alliances — both in contract teaming and technically specific joint ventures.

"We need a more in-depth, comprehensive understanding of our capabilities and strengths across the divisions," says Bischoff. "We must gear up more aggressively in new technologies which we already know are critical to our future, and we need to make sure that we invest in the right ones. All the avenues of technology must be examined so that we make decisions that correctly position us for major opportunities in the future.

"Long range forecasting is essential," he says. The Office will look into the future and develop the long range goals of the technical community and ensure that they are in concert with the company's goals.

"It will provide technical guidance and a technology conscience at the executive level," says Bischoff. "It will serve as a forum for technical issues that cannot be resolved at the division level. It will assure that research and technology development programs support the strategic goals of both individual divisions and the overall corporation." Cost savings will result due to reduced redundancy and overlap.

"The Office will benefit the company and its people," says Bischoff. Divisions will be assured

access to the technical talent that exists throughout the corporation.

"We are blessed with a loyal, dedicated, stable base of technical talent," says Bischoff. "Young people are our principal concern right now. Their professional development is very important to us. We have got to encourage them to assume more responsibility at a younger age than any of us did," says Bischoff. "They have excellent opportunities for both technical and supervisory growth and personal gains.

'So far, feedback from the technical community has been positive.'

"Meanwhile, we must make sure that our experienced technologists are exposed to new challenges that will maintain their vitality," he adds. "Our researchers must have the freedom to explore new challenges. While at the same time, we need to apply research toward clearly defined products.

"For the Office of Corporate Technology, we assembled a team of leaders who have a broad understanding of industry requirements, its technology needs and the capabilities of our divisions," says Bischoff. They will be talking with members of the Grumman technical community to further assess their needs as the Office gets established.

On occasion, the Office will ask the technical community to provide talent and resources to support various projects. "In these times of high backlog levels, tight schedules and skill shortages, these accommodations are not always easy," says Bischoff. "But they are necessary investments with significant returns.

"So far, feedback from the technical community has been positive," says Bischoff. "Of course, I don't think any two engineers totally agree on what changes the Office should bring about. Obviously, when you are creating something that will directly affect a technical community of some 7,000 people there are many details and trade-offs to be considered — and many accommodations to be made."

Over the next few months, the members of the Office of Corporate Technology will be gathering more input from the technical community and developing a detailed operating plan.

"Technology is the foundation of Grumman's success — and it is the platform for the future," says Bischoff. "Our technology must adhere to — and at times - guide the company's strategic goals. Technology is a company resource. All divisions should draw upon this resource and contribute to it. The more effectively we understand and use this resource, the better prepared we are to grow and be profitable.

"The Office of Corporate Technology can work — it must work," adds Bischoff. "Change is upon us. If we don't do something about it, we will not survive."■

Spread The News. *'The Office's creation is good news for everybody in the technology community, because it reinforces at the highest level of the corporation the importance of our scientists, engineers and technologists. After all, technology is the life blood of our business,' says Vice Chairman-Technology Will Bischoff. At left, Tim Brooks works in a lab at the Corporate Research Center in Building 26. Above, Bob Farrell of Electronics Systems works on the first Commercial Equivalent Equipment unit purchased by the Army as part of the Intermediate Forward Test Equipment program.*

Office Has Five Units

Vice President Richard Scheuing has left his post as director of the Corporate Research Center to become deputy of the Office. The Office consists of five units.

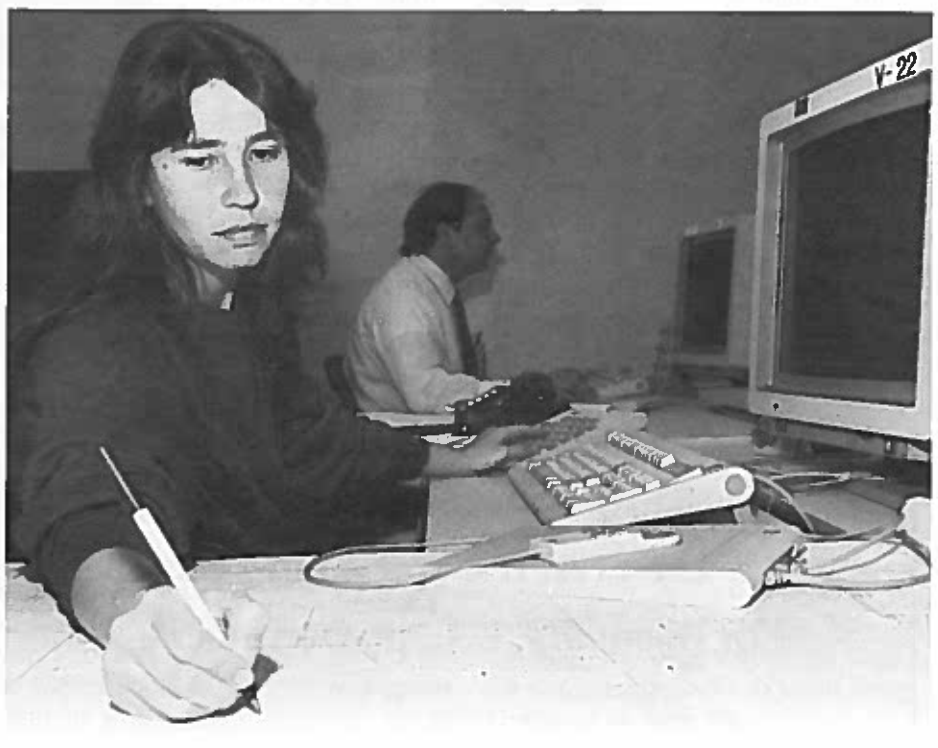
The William T. Schwendler Development Center, directed by Chris Witt, will provide development labs and support skills for all divisions with a revised competitive costing structure.

The Corporate Research Center will be directed by Dr. Richard DeIasi. Among its reponsibilities will be to participate in corporate strategic planning and technology assessments and forecasting.

Engineering will be directed by John Strakosch, and will advise, guide, coordinate and oversee the engineering community.

Technology Development will ensure that there will be no duplication of technical work in divisions. It will direct the company's technology development program and will be responsible for the use of IR&D and technical overhead monies. Vice President Dick Anderson has been appointed director.

Advanced Concepts, under the direction of Dr. Richard Gran, will monitor the technology trends, perform forecasting and assess potential new business and joint ventures.



Tools Of The Trade. *Detlef Hartmann (above), a systems engineer in Data Systems, uses a set of programs called the Information Engineer Workbench to develop data flow diagrams that will assist him in the development of a new management information system. Lisa Alexander (below) creates a drawing of one of the structures in the empennage of the V-22 Osprey, using the CADAM (Computer Aided Design and Manufacturing) system. (Photos by Bob Settles)*

What Will Be The Biggest Challenge Facing The Next U.S. President?

In January, 1989, Ronald Reagan will step down as President of the United States. Someone new will take on the responsibility of guiding the nation into the 1990s. Most say it will not be an easy task. We asked some Grummanites in Data Systems' Division Holtsville, L.I. facility, what they feel will be the most challenging issues facing the next president. Will it be reducing the federal deficit, striking an arms agreement with the Soviet Union or improving the social programs in the United States? What do you think?

Dan Burt

Peace with the Soviet Union should be the most important issue for the next president. The challenge will be to get the two governments to establish an honest relationship with each other and begin to deal fairly. The next challenge will be making sure our Social Security system does not get abolished. The president must convince those opposed to keeping Social Security that they may need that money someday, too. The people who have a lot of money now should not make the decision to do away with the fund. The average income people are the ones who will depend on that money when they retire.

Robert Hicks

The president must continue to work toward achieving strategic arms agreements with the Soviet Union. Nuclear disarmament is a challenging issue not only for world peace, but for the world's economy. We are reaching a point where we can't support our social programs and goals, and our military programs and goals at the same time. There has been some very good dialogue between the United States and the Soviet Union. The next president is going to have to turn these positive steps into some real treaties and arms reduction agreements. The efforts shouldn't be wasted.

Lorraine Larkin

I don't think enough time is spent addressing social problems such as child care. Single parent families are now a fact of life. With the rising cost of living, single parents have no choice but to work. If the government wants us to pay more and more taxes, they should help provide for our children while we are working to be able to do that. The president should look into setting up programs where the government and companies help subsidize decent day care centers.

Michael Galgano

The ever-increasing federal deficit will definitely pose a challenge to our next president. It's the biggest problem facing our nation for the next decade. The president will have to make cuts in the country's programs - across the board. That means defense spending as well as social programs. The executive branch of the government should also cut back — there are so many departments and divisions. Corporations are being asked to cut back and work with fewer people; the government should do the same. Zero base budgeting might be the answer.

Charles Hartigan

The Middle East controversy is certainly a challenge. The president has to deal with people who do not carry the same values as the American people do. They do not put a high price on life. Their wars will probably always continue with or without us. The challenge is fitting in somewhere to protect the oil flow from those countries. I don't know if sitting in the Persian Gulf with the Seventh Fleet is going to accomplish anything. However if Japan, France and other countries pitch in to form a united interest in the area, violence may be prevented.

Charles Forzano

I think the president must concentrate on restructuring the tax plan. It needs to be made more equitable to everyone. The government has taken away many of the deductions that the middle class has been able to take advantage of. The people are going to be quite surprised in April when they realize how much money they are going to have to pay the government. I would like to see them bring back some of those deductions and tax those people earning over $200,000 a year more heavily. Their share of the bill should be a little greater.

Vera Lukin

Sooner or later the president is going to have to think of a better medical care system for the poor and the elderly in this country. That solution might be modelled after the Canadian or British semi-socialist medical care system. By deducting a little money each week from everyone's paycheck, we can secure a medical fund for those in need. People are just not making enough money to deal with the rising costs of hospitalization, dentistry or catastrophic illness care.

Leo Torrens

This country has a very large foreign trade deficit that the next president will have to address. It has been a problem for years. I guess it all started when we began to import goods that could be made much cheaper than here in the United States. Electronics is a good example. Practically all of our electronic parts come from the Far East. The federal government has tried devaluing the dollar against foreign currency, but it hasn't seemed to help. The fact is that we import about $15 billion more a month than we export. If the president doesn't confront this challenge, the trade deficit could undermine the currency of the U.S. and thereby our strength.

The 25-Year Luncheon Will Be Held

At The Crest Hollow Country Club

In Woodbury, L.I., on December 8

Wire Works. *Electronics Systems Division's Paul Tregor (L), Jennifer Hunt (C), and Rick Rowe, trouble shoot the main power box for the E-2C. At the two-year-old Salisbury, Maryland facility, the 336 Grummanites build the intricate wire harnesses that link all the electronic wizardry in Grumman aircraft. About 90 percent of the employees were hired locally and completed a training program co-sponsored by Grumman and the State of Maryland. The state screened applicants from nine surrounding counties and from Delaware and Virginia. The division expects employment there to top 400 by the year's end.*

An interview with St. Augustine President Joe Walter

'While The Foreign Market Has Shrunk, The U.S. Government Aircraft Overhaul Business Has Increased And We Have Been Able The Capitalize On That.'

Grumman World *recently interviewed Grumman St. Augustine President Joe Walter as part of its continuing series of interviews with top Grumman officials.*

Grumman opened this facility in St. Augustine, Florida, in 1980. Today, the Grumman St. Augustine Division has a work force that is nearing 1,000. By and large it serves U.S. and foreign military customers.

Grumman World: *What does Grumman St. Augustine do?*

Walter: Our business is to take tired older aircraft and refurbish them. We upgrade their electronics, restore materials, put newer engines in them and make these aircraft last a lot longer. Today new military aircraft may cost between $20 and $40 million apiece. We can upgrade the capabilities of older airplanes for 10 to 15 cents on the dollar. It happens to be a good investment for the government and for us it's a very good business — it puts a lot of good people to work for a long time.

GW: *How much of the business does Grumman St. Augustine get?*

JW: In 1987 we're looking at $34 million in total sales and next year we hope to hit $45 million.

GW: *Virtually all of your work is for the U.S. government. Is that by choice?*

JW: That's the way things have worked out. Initially, St. Augustine was established to try to take advantage of foreign airplane refurbishment opportunities. That business has not evaporated but it has definitely declined. The economies of many countries have taken a significant downturn in recent years. In addition, some Third World countries view airplane refurbishment as a way to employ their own people, so they have entered the refurbishment business, too. In many instances, they are in direct competition with us.

However, while the foreign market has shrunk, the U.S government aircraft overhaul business has increased and we've been able to capitalize on that.

'We have delivered the vast majority of our airplanes without a single discrepancy.'

GW: *Are the Naval Aviation Depots and similar government depots becoming your major competitors?*

JW: Definitely. The NADs — Naval Aviation Depots — have a mission to support combat readiness. If an aircraft carrier or air station receives combat damage, the NAD civil servants can be called on to provide a mobilization backup and to repair damaged aircraft.

But NADs are expensive to sustain during peacetime, so there has been a concentrated effort to keep aircraft workload in these depots. With congressional funding shortfalls and cutbacks, the NADs have had to lower their costs and become very entrepreneurial and aggressive in pursuing work.

Because the Navy and Air Force depots are becoming more competitive while many other firms have formed operations like ours, there is a lot of competition.

In one recent A-4 competition, 82 companies showed up for the pre-bidders conference. Eighty-two interested competitors! About 30 submitted proposals. Unfortunately, we didn't win. We were the runner-up.

GW: *Is cost the number one concern when you bid a job?*

JW: For certain contracts it's the only consideration. The way many of these contracts are structured, you need to be the lowest bidder to win.

However, we are very cautious in these competitions. We do not compromise Grumman standards of excellence one iota. We are striving to be the best in the business, and yet do it at the very lowest cost in the industry. But we will not compromise on quality in any respect. That sets us apart from a number of our competitors.

GW: *What about work on commercial aircraft?*

JW: It's disappointing. The commercial business is a tough one to get into. Airlines already have their own facilities. In addition, when their own airplanes aren't being worked on, they branch out and do work for start-up airlines that don't have their own facilities.

But the biggest factor against us getting into this field is the requirement for extremely large facilities and the equipment to handle the bigger airplanes. For instance, the 747 requires all kinds of outsized hangar space, dollies and fixtures. We don't feel there is a profitable opportunity there. The investment cost of establishing those facilities just doesn't make it a sensible business proposition.

GW: *What major programs are in house now?*

JW: We are the Navy's repository for overhaul and support of its fleet of KA-6D tankers. Grumman has been involved in that program for nearly 15 years and we hope it will continue for the next 10 years in St. Augustine. We have a contract for about 12 airplanes a year.

Our other big A-6 program is for the Target Recognition Attack Multisensor (TRAM) retrofit. We are converting older A-6E's to the TRAM configuration and making a number of other changes to the airplanes, such as installation of new, composite wings and survivability and vulnerability improvements. We have recently been awarded 19 additional A-6 TRAM conversions. Follow-on composite rewing opportunities for an additional 32 A-6E's is very promising. The A-6 is going to keep us busy for many years.

We're also performing modification and depot-level maintenance on the TC-4C, which is a Gulfstream I that was converted to an A-6 Naval Flight Officer's training aircraft. We won that contract competitively a few years ago. It's renewable annually for five years.

GW: *What about your work on the E-2C Hawkeye?*

JW: That new job is a significant shot in the arm for us. We are removing the old wings and installing newer, stronger center wing sections to handle the increased weight these planes are carrying. We are doing some other structural modifications, also. The first two airplanes arrived in St. Augustine in April. We received the first center section on Labor Day and we are going to deliver the first two aircraft to the Navy in December. We expect to induct about 80 airplanes during the next four or five years.

This opportunity will generate more than $100 million worth of additional man-hours in St. Augustine. Next year, our overall workload will increase by 25 percent.

GW: *Grumman St. Augustine is expanding to the other side of the airport next year. Why?*

JW: We are very constrained by our available high-bay hangar space on this side. The new hangar will be able to accommodate significantly more aircraft as well as larger aircraft, such as a Boeing 707. We anticipate opportunities to do modifications to military airplanes of that size.

GW: *Quality has always been a Grumman trademark since its inception. How would you rate Grumman St. Augustine's work?*

JW: We have an excellent track record. Our customers, the squadrons, perform their acceptance inspection after they receive the airplanes. To them, it's just like buying a new car. When you pick it up, you write down all the defects you find, and report them to the dealer so that he will correct them within the warranty period.

'While the foreign market has shrunk, the U.S. government aircraft overhaul business has increased and we've been able to capitalize on that.'

The airplane business is much the same. The squadron maintenance chief assembles all his guys and they go out with a fine-toothed comb and climb all over the airplane and they write up all the discrepancies that they find.

In the last 103 airplanes that we delivered to the U.S. Navy, we've had zero critical, and only nine major and six minor discrepancies. In short, we have delivered the vast majority of our airplanes without a single discrepancy.

GW: *Peaks and valleys in workload are often the nature of the business. Have you had many valleys?*

JW: Yes, we had a couple of them. The most recent was this past year. Nearly a third of our work force needed work. Thanks to the help we received from throughout the company, we were able to "loan" our people to Stuart and Calverton, Bethpage and Milledgeville. If we hadn't, we would have lost a lot of good employees, and community support which is very strong and something we cherish. We're trying very hard to level all those hills and valleys and keep our team of skilled and valued employees together.

GW: *What kind of a relationship do you have with the community?*

JW: We're getting excellent support from the community. It goes well beyond the city fathers to the state and congressional levels as well. We're the largest industry in the county by a factor of three. People are looking to us for growth potential and job opportunities for their youngsters. The community looks to us to bring

(Continued on page 10)

People

In The Driver's Seat

Grummanite Dave White has been named chairman of the western Michigan group of the Society of Automotive Engineers. He is a senior safety engineer at Grumman Olson's Sturgis, Michigan, facility.

International Award

George Gayes has become the first Grummanite to win the directors' award from the Society of Flight Test Engineers. The international award was presented to him at the society's 18th annual symposium, held in Amsterdam, The Netherlands, September 28-October 2.

Gayes, a 34-year Grummanite who is manager of Flight Test Special Projects, was named co-winner of this year's award for his work over the last two years in establishing and organizing the society's Technical Council. Once the council was organized, he served as its secretary and also as a delegate from the society's Long Island chapter.

"He pretty well built the darn thing," says John Kispert of Flight Test, who succeeded Gayes as president of the chapter. Gayes was president of the Long Island Chapter — 100 of the 110 members are Grummanites — during 1986. He was also president in 1983.

"The award was a surprise," says Gayes, adding that the credit for the success of the council belongs to the members of his committee: Grummanites Bill Cutler, Ralph Hilbert, Dick Kinsella, Linda Sapieta and Dick Townes.

"We did that work on our own time," says Gayes. "The fact that somebody shows appreciation is very gratifying."

Now In Print

The Society of Automotive Engineers has published a paper penned by Grummanites Ed Scicchitano and Frank Tepes. It appeared in the society's journal, *Transactions*, in September.

Scicchitano is an Aircraft Systems power plant technical specialist on the F-14D program in Building 1, Bethpage. Tepes is a power plant engineer now on the A-6F program in Melville.

The paper, titled "A Systems Approach to Engine Starting System Design," is a general guide for any engineer struggling with the problems of designing pneumatic starting systems for aircraft engines.

It's the third paper for Scicchitano, who has over 25 years of experience in the field.

Marathon Fliers. *Few people know the inside of an E-2C better than Bob Barrington (L) and Pete Tyer. Along with one other flier, they've spent more time in their 'office' than any other Hawkeye backseaters. (Photo by Rich Breunig)*

Barrington And Tyer Reach 4,000 Flight Hours In Hawkeye

Bob Barrington and Pete Tyer, two senior flight test engineers in Bethpage, have done what only one other Hawkeye backseater has ever done. They have each logged over 4,000 flight hours at the consoles in the back of E-2C airborne early warning aircraft.

Tyer has the most hours. He crossed the 4,000 milestone last year. Since then he has logged another 400 hours. Barrington reached the 4,000 hour mark this past June 12. A Navy backseater, Capt. Tim Horner, who is now at the Industrial College of the Armed Forces, has also logged over 4,000 hours.

They are the only three backseaters to have reached this stratospheric plateau. "Once in a while you'll hear about a pilot at four or five thousand hours," says Tyer. "Usually backseaters are in the 2,000 hour range. Several of our people in Flight Test are in the 2,000 hour range."

Tyer is a former naval flight officer, a generic job description that goes with Hawkeye backseaters. But, when he was in the service, he never flew Hawkeyes.

It took a long, long time to get to 4,000 hours. Tyer started logging hours in Hawkeyes in 1961.

Barrington, a former Air Force electronic countermeasures officer who joined Grumman in 1965, didn't log his first day in the back of an E-2 until September 28, 1972. "That's what I wanted to do when I first signed on, but it didn't work out." He spent his first seven Grumman years with the Instrumentation group and then with Data Systems, until he heard the Hawkeye program was looking for someone with an electronic warfare background.

On the average, Barrington says, they get in about 250 flight hours a year. If they are checking out a production plane, a flight usually lasts about an hour and a half. Development flights last much longer.

Tyer says, "With the E-2C, a long flight would be four and a half hours. Sometimes we'll fly two or three times a day, sometimes every day. This week we weren't flying at all."

With all those hours in the air, both credit great ground crews for keeping most of the hours uneventful. "They are good people," says Barrington.

"On a few occasions," Tyer recalls, "there were occurrences that made the hairs stand up on the backs of our heads, but those occasions are rare."

The real excitement comes from being assigned to projects such as delivering the first Hawkeye to the Israelis, or flying technical evaluations over France. Usually it's just another day at work. Most of the time, says Tyer, "It's not too glamorous flying back there in the dark."■

An Interview with Joe Walter

(continued from page 9)

some prosperity to the area. There are only about 18,000 people in the city of St. Augustine. We employ about 1,000 people.

More than $6 million in state and federal funds have been used — largely for our benefit — to develop the airport property, to resurface the runways, to provide additional taxiways and roadways and provide the infrastructure to help us grow. Were it not for the support of the entire community we'd have a tough time competing.

GW: *Was there a time in your four years here that you weren't sure if Grumman St. Augustine would survive?*

JW: No, but I'm one of the world's greatest optimists. When you're in this refurbishment business without a product line, it does give you a bit of insecurity at times.

But I think we're doing this job better than anyone else. We are always on or ahead of schedule. The fact that we make our customers happy will generate the kind of repeat business we want and need.

Take the Malaysian A-4 program. The Malaysians have told other countries about the quality work that we had done and it led to a number of other jobs. Work that we did in Singapore has put us in touch with Mideastern and South American air forces. It wasn't our marketing initiatives as much as it was the reputation we have built with satisfied customers.

GW: *Is the A-4 the major success story for Grumman St. Augustine?*

JW: Well, it certainly gave us our biggest boost. It was a very challenging program for us to begin with. Forty airplanes received major overhauls and new equipment with modernization in a number of areas. Some were modified extensively, in that single-place aircraft were converted to two-seat trainers.

That was a big step for a young company to take so early in its life. It forced us to become relatively self sufficient and we developed the capability to perform a broad variety of jobs. We really learned a lot in a hurry.

GW: *Do you get a lot of feedback from the work force?*

JW: Yes. I encourage everyone to speak openly. We continually talk and listen to people in small and large groups. We have pep rallies and open forums. I believe all of the people should know where we are going, what our objectives are, and what needs to be done. When they know and understand all those things that are vital to the division, they can contribute and will do a better job.

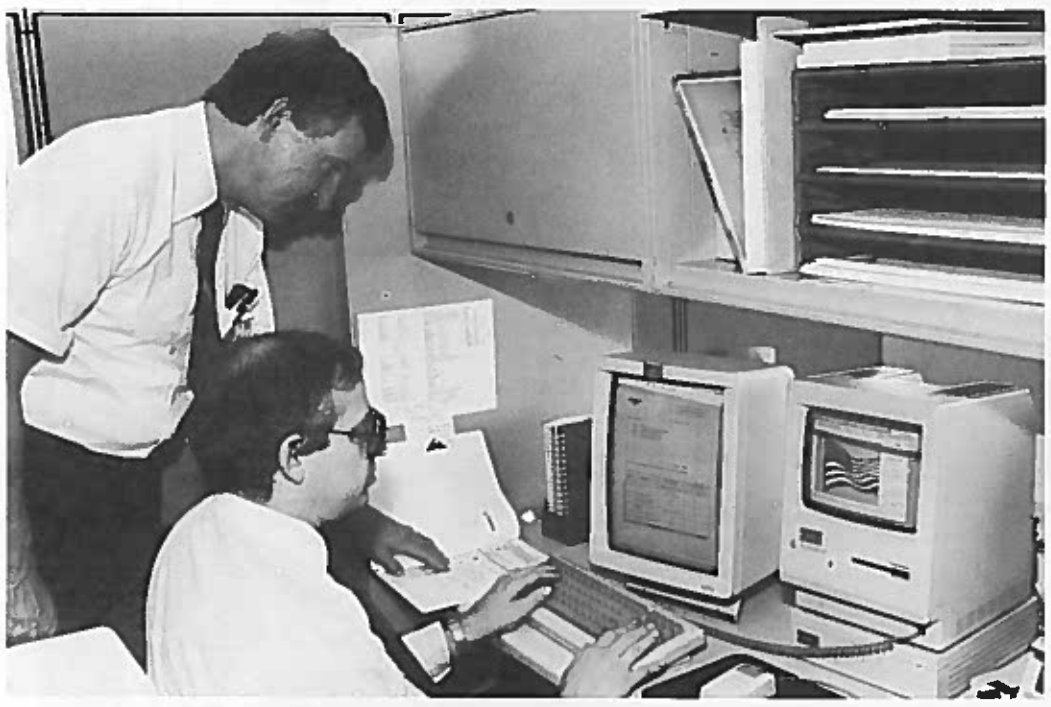
GW: *How do you want Grumman St. Augustine to be viewed?*

JW: As the "good-hands people" for the United States Navy. Our customer must be satisfied. The pilots and the people who service and maintain the plane out there in the fleet are our customers. Our responsibility is to give them a reliable, top-quality product.■

Retirees

On behalf of our fellow workers, *Grumman World* salutes the following Grummanites for their contributions to the company and wishes them well in their retirement. Those who have recently retired are:

Walter Krumm (GHQ), Thomas Attina (18), Ferdinand T. Pacelli (3), James M. Purtee (11), Arthur Berman (30), Paul Schlie (7), Alfred A. Grillo (12), Frank Guenther (2), Constantine Poulos (GHQ), Ira Rubin (121), Floyd W. Richardson (66), George M. Lofsten (6), John A. Lund (15), Patricia A. Rupply (GHQ), Jack A. Rowman (40), Stanley Musinski Jr. (43), Maria J. Spadalik (3).



Rules And Regulations. *Above, systems analysts Bruce Wells (standing) and Rich Wilner edit a document on the department's Apple MacIntosh computer. At right, Bob Sanginario, manager-Records and Systems Management, browses through the finished product. (Photos by Bob Settles)*

Corporate Systems And Procedures Helps Keep 33,000 Grummanites Working By The Book

Here's a tough assignment.

You have to write instructions telling thousands of people how to perform a routine task. You imagine people shouting: "What could you possibly know about it? You were trained as an accountant!" Worse yet, a dozen departments must be involved in the writing-and-editing process. You foresee no end of bickering.

While many might throw up their hands in despair, it is all in a day's work for the people in Grumman's Corporate Systems and Procedures department.

This group publishes the corporate directives, procedures, and instructions that inform all 33,000 Grummanites on the company way of doing business. There are about 400 corporate publications in all and about 250 publications covering specific responsibility centers in Grumman. Topics include everything from buying supplies and services to delivering an aircraft to a customer.

"We provide management with guidelines on how people should do their work," says Dick Gaudet, assistant manager of Corporate Systems and Procedures. "We spell out the correct workflows. We balance work processes. We make sure departments don't trip over each other."

Most of the seven people in the department come from business and accounting backgrounds. But several of them have worked in industrial engineering and quality control. All of these areas gave them experience in analyzing work processes and productivity.

Corporate procedures and instructions are the most numerous and their trademark is the flow chart. They provide step-by-step guidelines on how processes should work, such as approval and routing of an expense report.

In writing one of these documents, the department's analysts first interview Grummanites about the way work should be handled. Often there are many roundtable discussions before the writing ever begins.

In addition to being easily understood, a procedure must be thorough. The rough draft gets reviewed and, usually, edited by all the parties involved. Sometimes, several drafts must be sent out to multiple divisions and dozens of departments, who make changes.

"The job requires coordination among many groups and interviewing a lot of people," says Gaudet. "It doesn't always flow smoothly," he says. "Sometimes, you get an entirely different story from each different group. You have to be a professional peacemaker. You also need the ability to suggest common-sense solutions."

The final product must be reviewed by top Grumman management, the division or divisions it applies to, and frequently, Grumman's Legal Department.

The way Grumman Corporation is now structured, each document has a clause at its very beginning spelling out which divisions and employee groups it applies to. Content is sometimes in response to government contracting rules.

Due to the commercial nature of its business, Grumman Allied Division is often excluded from such rules. Others apply across the board. A good example is the hazard communication program, which requires user-instruction labels and explanatory posters in all Grumman facilities that use potentially hazardous chemicals.

"Our job has increased tremendously over the last few years," says Gaudet. "There are more government regulations and audits to follow, more issues facing the company. That means more policies and procedures."

Corporate Systems and Procedures has been in the midst of a project to update its entire manual. This led the department to acquire a desktop publishing system.

The department now uses two Apple MacIntosh personal computer workstations to perform a good portion of the word processing, graphics, and page layout. As a result, the department now publishes better looking and less expensive documents — and faster, too. In addition to letting analysts revise documents easily, the desktop publishing system can keep a log of where each one has to go for approval, and who has responded.

The department hopes to get two more "Macs" in 1988. It also has tentative plans to link its three Wang terminals to the MacIntosh, and to hook up electronically with other Grumman sites for distribution of its document index.

Gaudet has been in this department for 22 years. "It's always interesting," says Gaudet. "You really get to observe how the whole company works."■

Readership Survey

We don't want to do all the talking. We'd like to know what you think about the things you see in these pages. Your comments, suggestions and complaints are welcomed. Please take a few minutes and give us your opinions.

Article	Great	Good	Poor	Didn't Read
Pension Plan (Pg. 1)	☐	☐	☐	☐
F-14 Missile (Pg. 2)	☐	☐	☐	☐
Egyptian Hawkeyes (Pg. 3)	☐	☐	☐	☐
EIP Equity Fund (Pg. 4)	☐	☐	☐	☐
Corporate Technology (Pg. 6)	☐	☐	☐	☐
What Do You Think? (Pg. 8)	☐	☐	☐	☐
Interview With Walter (Pg. 9)	☐	☐	☐	☐
Chairman's Letter (Back Page)	☐	☐	☐	☐

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Mail to: Grumman World, A22-GHQ
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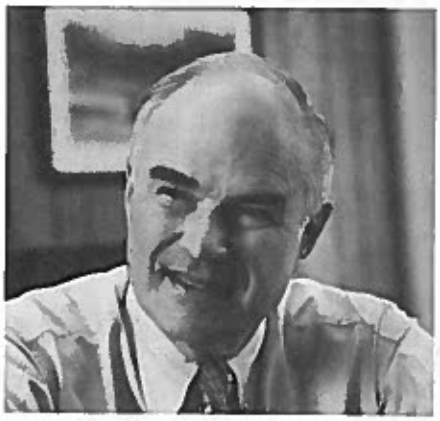
A Letter From The Chairman



At several recent pin meetings there has been a lot of conversation about the stock market crash on Wall Street. The essence of concern: What does this mean to Grumman?

As you can imagine, the full impact is far from clear. The first and immediate impact was on the funds in which so many of us have an interest. The Pension Fund is invested in stocks and bonds to earn a return that pays the pensions of most of the Grumman retirees.

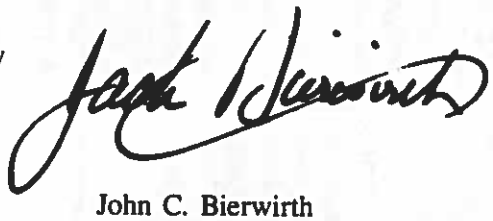
Because of the money Grumman has contributed to the Pension Fund over the years and the growth of the fund by successful investment, it has had and still has a solid surplus above and beyond the requirements for all retirees and vested employees. It was interesting to me to see that the managers of the fund — who are Grumman employees — have been moving money out of the stocks and into short-term, fixed income securities for the past several months, because they expected a decline in the stock market. Since the beginning of the year they sold $425 million of stocks, so that when the market collapsed on "Black Monday" only 40 percent of the fund's assets were invested in stocks.

The effect of market fluctuations on our Employee Investment Plan accounts varies, of course, depending on which of the funds each Grumman person has chosen. The equity fund is invested in stocks that rise and fall in value with the market. The negative impact on this fund was about 21.5 percent, which is about average for similar funds. The real test of such a fund's management is the degree of recovery after such a fall.

The fixed income fund actually increased in value, reflecting the rise in the bond market and the decrease in interest rates. The guaranteed income fund did not change since it is really insured income and not an investment. The reduction in interest rates may make continuing our 11 percent yield more difficult in the future.

The Grumman stock fund and the company stock contribution to each account of course fell in value on October 19, along with the rest of the market — as you could see in the stock market reports.

In the bigger picture, the behavior of the stock market has focused government attention on the rapid growth of our national debt over the past several years. Congressional representatives and members of the Administration are examining ways to balance Federal income and spending more closely. Some Grumman programs are always at risk in this process. This could create problems for us, but I'm rather optimistic. I know that our programs are important, that they are often key to our country's peace keeping responsibilities as they will be viewed following this fall's summit hearing.



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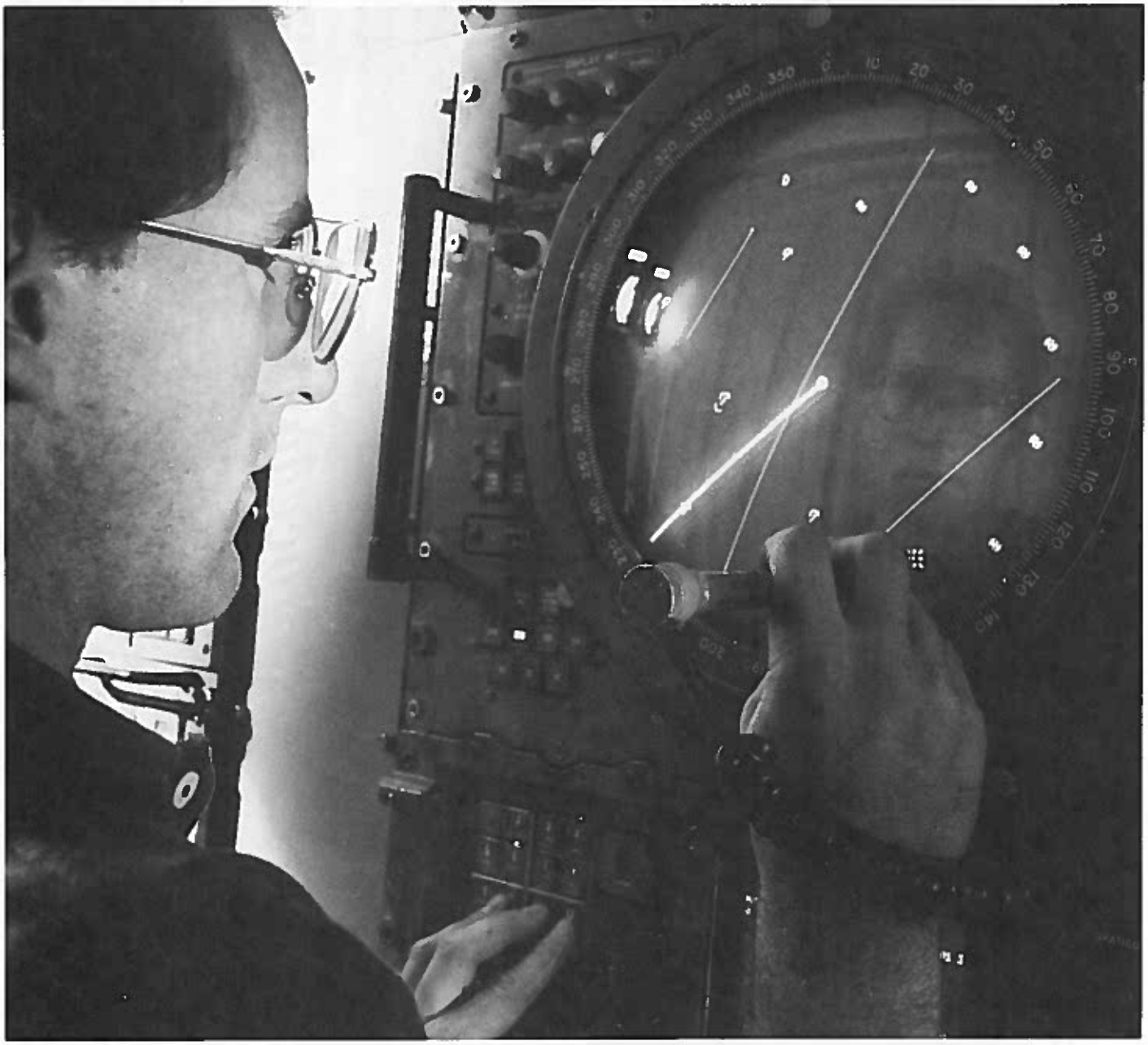

(Photo by Bob Seitles)

Pinpointing The Scope Of The Problem

Digital electronics technician Chris Ferry works in the Flight Test and Systems Integration Lab in Building 4 in Bethpage. He is trying to locate a problem in a piece of E-2C computer display system hardware. "We know the unit's electronics, all its wiring, and all the integrated circuits — and we know which one will cause what problem," he says. The testing is done on a bench that simulates the inside of a Hawkeye, right down to having the same length wires connecting everything. Differences such as unequal wire lengths could change the way the system reacts and make it tougher for the technicians to find and fix a problem.